

CLAIMS

We claim:

- 5 1. A method of controlling the transmit power of a forward link signal
between a basestation and a mobile device in a communications
network, said method comprising the steps of:
- 10 sending a first signal from the basestation to the mobile device, said
first signal having a first signal transmit power;
receiving said first signal at the mobile device;
measuring said first signal for a received signal to noise ratio at the
mobile device;
- 15 sending a second signal from the mobile device to the basestation,
said second signal containing information about said received signal
to noise ratio; and
setting the transmit power of the forward link signal based on said
received signal to noise ratio information and said first signal
transmit power, said setting step including:
- 20 estimating a signal component value based on said received
signal to noise ratio;
calculating the difference between a desired signal
component value and said estimated signal component value;
and
- 25 assigning the transmit power of said forward link signal to a
value obtained by offsetting said first signal transmit power by
the difference found in said calculation step.
- 30 2. The method of claim 1, wherein said method is performed during a
traffic initialization period between said basestation and said mobile
device.

3. The method of claim 1, wherein said forward link signal is a preamble sent from said basestation to said mobile device.
4. The method of claim 1, wherein said first signal is a pilot signal.
5. The method of claim 1, wherein the step of sending said second signal is performed over an access channel in the communications network.
6. The method of claim 1, wherein said desired signal component value is a pre-optimized preamble E_c/I_o value.
7. The method of claim 1, wherein the desired signal component value is determined based on said mobile device.
8. The method of claim 7, wherein the desired signal component value is reported to said basestation during said sending said second signal step.
9. The method of claim 7, wherein the desired signal component value is limited by a threshold value, whereby if said value based on said mobile device exceeds said threshold value, said desired signal component value is set to said threshold value.
10. The method of claim 1, wherein the desired signal component value is selected from a predetermined value at said basestation and a value received from said mobile device.
11. The method of claim 10, wherein said selecting is performed based on the higher value between said predetermined value at said basestation and said value received from said mobile device.

12. The method of claim 11, wherein said selecting is limited by a threshold value, whereby if said value received from said mobile device exceeds said threshold value, said selecting step uses said threshold value.
- 5 13. The method of claim 1, wherein said setting step further includes adding an offset value to the transmit power of said forward link signal.
14. The method of claim 13, wherein said offset is between 0 and 6 dB.
- 10 15. The method of claim 1, wherein said estimated signal component value is an estimated E_c/I_o value of said first signal.
16. The method of claim 1, wherein said communications network is a CDMA network.
- 15 17. A system for controlling transmit power of a forward link signal in a communications network, said system comprising:
- a mobile device, said mobile device adapted to:
 - receive a first signal from a basestation;
 - 20 evaluate a signal to noise ratio of said first signal; and
 - transmit information about said received signal to noise ratio to said basestation; and
 - said basestation, said basestation being adapted to:
 - send said first signal with a first signal transmit power;
 - 25 receive said information about the received signal to noise ratio from said mobile device; and
 - set the transmit power of said forward link signal based on said information about said received signal to noise ratio and said first signal transmit power, said setting of the transmit power in said basestation including:
 - 30 estimating a value of a signal component of said first signal based on said information about the received signal to noise ratio;
 - determining a desired value for said signal component; and

setting the transmit power of said forward link signal by adding the difference between the desired signal component value and the estimated signal component value to the first signal transmit power.

- 5 18. The system of claim 17, wherein said first signal is a pilot signal.
19. The system of claim 17, wherein said transmitting of information from said mobile device is performed over an access channel.
- 10 20. The system of claim 17, wherein said forward link signal is a preamble on a traffic channel sent from said basestation to said mobile device.
21. The system of claim 17, wherein said setting of the transmit power in said basestation is performed during a traffic initialization period
15 between said basestation and said mobile device.
22. The system of claim 17 wherein said evaluating of said first signal in said mobile device is performed on a first signal component.
- 20 23. The system of claim 22, wherein the first signal component is the E_c/I_o of the first signal.
24. The system of claim 17, wherein said determining said desired signal component value is based on a pre-optimized preamble E_c/I_o value.
- 25 25. The system of claim 17, wherein said determining said desired signal component value is based on said mobile device.
26. The system of claim 25, wherein said desired signal component value is reported to said basestation during said transmitting of information step.
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27. The system of claim 25, wherein the desired signal component value is limited by a threshold value, whereby if said value based on said mobile

device exceeds said threshold value, said desired signal component value is set to said threshold value.

5 28. The system of claim 17, wherein the desired signal component value is selected from a predetermined value at said basestation and a value received from said mobile device.

10 29. The system of claim 28, wherein said selecting is performed based on the higher value between said predetermined value at said basestation and said value received from said mobile device.

15 30. The system of claim 29, wherein said selecting is limited by a threshold value, whereby if said value received from said mobile device exceeds said threshold value, said selecting step uses said threshold value.

 31. The system of claim 17 wherein said setting further includes adding an offset parameter to the transmit power of said forward link signal.

20 32. The system of claim 31, wherein the value of the offset parameter is between 0 and 6 dB.

 35. The system of claim 17 wherein said communications network is a CDMA network.